

Amendments to the Claims:

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1. (Currently Amended) A ~~Circuit circuit~~ for measuring the cell-post voltage and internal impedance ~~voltage in value of~~ storage battery cells, the circuit comprising:

a differential amplifier having inputs connected to battery terminals(+,-);

a reference constant voltage circuit connected to offset terminals of the differential amplifier;

a direct current coupling circuit connected to an output of the differential amplifier;

a band pass filter configured to allow only signals having a frequency band near to internal impedance voltage signals to be passed;

a A/D converter for converting analog signals into digital signals, wherein the analog signals include alternating current signals flowing into the battery cells, internal impedance voltage signals obtained from an output of the direct current coupling circuit, and direct current voltage of the battery cells obtained from the output of the differential amplifier; and

a central processing unit (CPU) configured to compute internal impedance values by obtaining output signals of the A/D converter~~High-Input-Common-Mode-Voltage-Differential Amplifier (1) and;~~

~~Reference Constant Voltage Circuit (2) and;~~

~~Direct Current Filter Circuit (3) and;~~

~~Buffer Circuit (4) and;~~

~~Direct Current Coupling Circuit (6) and;~~

~~Band Pass Filter (7) and;~~

~~Operational Amplifier Group (8) and;~~

~~A/D converter (5, 9) and CPU (10).~~

2. **(Currently Amended)** The circuit as claimed in claim 1, wherein the A/D converter (5, 9) and CPU (10) are replaced by A/D converter consisting of Multiplexerincludes multiplexer (MUX) circuit circuits having a plurality with a number of input channels, and ADC circuit, and CPU (10)

3. **(Currently Amended)** The circuit as claimed in ~~claim 1~~claim 2, wherein the A/D converter (5, 9) and the CPU (10) are replaced by A/D converter and CPU built in a micro controller unit (MCU) of comprise a eommereialized devicesmicro controller unit (MCU).

4-5. **(Canceled).**

6. **(Currently Amended)** The circuit as claimed in claim 1, wherein ~~Band the band pass filter (7) in which the~~includes a narrow-band pass filter, dependently connected in two steps, in which input signals are connected to an inverting input terminal of an operational amplifier through a first resistor and a first condenser, and a second condenser is connected between a common connecting point of the resistor and the first condenser, and an output terminal of the operational amplifierfilters which consist of two condensers, three resistors and one Operational amplifier, are comprised in a two-stage dependent connection.

7. **(Currently Amended)** A ~~Circuit circuit~~ for measuring ~~the cell~~ post voltage and internal impedance voltage in ~~storageof storage~~ battery cells, ~~comprisingwherein:~~

(i) storage batter cell terminal voltages are connected to non-inverting and inverting input terminals of a high input common mode voltage differential amplifier, negative constant voltages generated by a reference constant voltage circuit are connected to an offset terminal of the differential amplifier, an output of the differential amplifier is converted to A/D values through a DC filter circuit for eliminating noise, and

(ii) an output of the differential amplifier is converted into impedance voltage signals after passing a direct current coupling circuit, and then the impedance voltage signals is converted into A/D values after passing through a band pass filter(i) the outputs of the sense

terminals (3, 4) are connected to the none-inverting and inverting input terminals of a high input common-mode voltage differential amplifier (1);

the negative (-) constant voltage (Vref) which is generated by the Reference Constant Voltage Circuit (2) is inputted (connected) into the offset terminal of the above differential amplifier (1);

the output of the above differential amplifier (1) is filtered in the disclosed direct current filter circuit (3) and then buffered in the Buffer (4);

and converted from analog to digital;

(ii) and on the hand, the output of the above differential amplifier (1) is passed through Direct Current Coupling Circuit (6) and then transformed to the alternating signal of impedance voltage (V_{is});

and the above alternating signal is passed through band-pass filter (7) and Operational amplifier group (8);

and then converted from analog to digital.

8. (Currently Amended) The circuit as claimed in ~~claim 7~~any one of claims 1-3 and 7, wherein the reference constant voltage circuit~~Reference Constant Voltage Circuit (2)~~ has two constant voltage diodes, ~~ZD2 and ZD3 and the~~ a current limiting resistor R3~~resistor~~ in a serial connection and, and

the negative (-) constant voltage generated by the above an offset reference voltage at an

Reference Constant Voltage Circuit (2) is connected to the offset terminal of the differential amplifier (1) through the buffer circuit and;

the diode D1, variable resistor R4 and diode D2 are serially connected on the each terminal of the above constant voltage diode ZD2;

and the central terminal of the above variable resistor R4 connected to the ADJ terminal of the above constant voltage diode ZD2 to make it possible to minutely adjust the offset reference voltage (Vref) as the variable resistor R4, the offset reference voltage being configured to be slightly varied by a variable resistor connected to the constant voltage diodes.

9. (Canceled).

10. (Currently Amended) The circuit as claimed in claim 7, wherein ~~High-Input-Common Mode Voltage Differential Amplifier (1)~~the high input common mode voltage differential amplifier comprises ~~the differential Operational amplifier element whose a very high~~ input impedance, wherein ~~is very high and the~~ hundreds of kilo ohm (K Ω) resistors are connected to the inverting and ~~non~~non-inverting input circuits of the ~~above~~-differential Operational-amplifier element-and; the ~~disclosed Reference Constant Voltage Circuit (2)~~reference constant voltage circuit is connected to the offset ~~adjustment~~-terminal of the ~~above~~-differential Operational amplifier-element.

11. (New) A circuit for measuring post voltage and internal impedance value in storage battery cells, wherein:

(i) analog signals are connected to multiplexer circuit input channels of an analog to digital converter circuit (ADC),

(ii) said analog signals are input to ADC circuit by channel select signals from a CPU output, and

(iii) and said analog signals comprise:

direct current voltage signals of storage battery cells received as an output of a high input common mode voltage differential amplifier;

internal impedance voltage signals obtained from a direct current coupling circuit connected to the output of the high input common mode voltage differential amplifier;
and

alternating current signals flowing into the storage battery cells.

12. (New) The circuit as claimed in claim 1, wherein the A/D converter is equivalent to an AD7891 able to convert analog signals of about $\pm 10V$ into 12 bit digital signals.

13. **(New)** The circuit as claimed in claim 1, wherein the differential amplifier comprises a differential operational amplifier element having a very high input impedance comprising resistors having resistance values in hundreds of kilo ohm ($K\Omega$), respectively connected to inverting and non-inverting input circuits of the differential amplifier, and an offset terminal applied with negative constant voltage.